

REMARKS/ARGUMENTS

STATUS OF APPLICATION

Claims 27, 29-31, 33-38, 40, and 42-44 are pending in this application. Claims 27, 35, 38, and 42 have been amended. Claims 45-47 have been canceled. Support for the amended claims can be found in the specification. No new matter has been added.

Claims 27, 29-31, 33, 34, and 45-47 were rejected under 35 U.S.C. § 112, first paragraph.

Claims 27, 29-31, and 33-34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over United States patent number 5,763,921 to Okumura et al. ("Okumura"), in view of United States patent number 5,466,957 to Yuki et al. ("Yuki") and United States patent number 5,583,067 to Sanchez ("Sanchez").

Claims 35-36, 38, 40, 42, and 43 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yuki in view of Sanchez.

Claims 37 and 44-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yuki and Sanchez in view of Okumura.

THE CLAIMS

Reconsideration and allowance of the claims is respectfully requested in light of the amendments and following remarks.

35 U.S.C. § 112

Applicants submit claims 27, 29-31, and 33-34, as amended, comply with 35 U.S.C. § 112.

35 U.S.C. § 103(a)

Claims 27, 29-31, and 33-34

Applicants respectfully submit that the features of the present invention recited in claim 27 are not made obvious by Okumura in view of Yuki and Sanchez, and have further amended the claim to distinguish the present invention from the cited references. For example,

in order to emphasize the first and second pocket implants, Applicants have amended claim 27 to recite, in part, "... the first and second pocket implants are entirely between a source region and a drain region, and the first pocket implant and the second pocket implant are in contact at about the center of a channel region." Support for this amendment can be found in at least Figs. 3-4. None of the cited references, individually or in combination, teach or suggest these features as claimed.

As Examiner states, "Okumura does not teach pocket implants." (emphasis added, Office Action: p. 4). Accordingly, Okumura does not teach or suggest that "the first and second pocket implants are entirely between a source region and a drain region" as claimed.

Examiner analogizes the high concentration layer 21a illustrated in Fig. 3 of Yuki to Applicants' first and second pocket implants. Fig. 3 of Yuki clearly shows high concentration layer 21a extending outside the region between the source and drain regions. Nowhere does Yuki teach or suggest that the high concentration layer 21a be entirely between a source region and a drain region in the manner claimed.

With respect to Sanchez, Fig. 2 of Sanchez illustrates a LATIPS (large tilt-angle implanted punchthrough stopper) transistor in which implants 16 may arguably be entirely within the channel region. However, nowhere does Sanchez teach or suggest "the first pocket implant and the second pocket implant are in contact at about the center of a channel region" as claimed. In fact, Sanchez strongly advocates not using implants 16 since implants 16 do not surround the entire drain. Sanchez recites, "[t]he LATIPS transistor exhibits several undesirable features. First, the P implants 16 do not surround the entire drain. This requires wells to be deeper to prevent punch-through leading to a reduction in packing densities. Second, the LATIPS technology has not been characterized extensively, making its successful use in the manufacturing environment questionable. This is because the rotational aspect of the punchthrough implant provides a doping uniformity which is dependent on the placement, shape, and layout of the fabricated transistor. Additionally, the LATIPS technique requires very specialized and expensive equipment which is difficult to obtain." (Sanchez: col. 2, lines 3-14).

In addition, Applicants submit that the cited references cannot be combined as it is improper to combine references where the references teach away from their combination.

MPEP 2145. Sanchez teaches away from the use of implants not surrounding the entire drain for the many reasons discussed above, and thus teaches away from the combination of Yuki and Sanchez to show "the first and second pocket implants are entirely between a source region and a drain region, and the first pocket implant and the second pocket implant are in contact at about the center of a channel region" as claimed.

Accordingly, claim 27 should be allowed for at least these reasons.

Claims 29-31 and 33-34, which depend from claim 27, should be allowed for at least a similar rationale as discussed above for claim 27, as well as for the additional features they recite.

Claims 35-36, 38, 40, 42, and 43

Claim 35 recites, in part, "the first pocket implant to merge with the second pocket implant, wherein the first and second pocket implants are entirely between a source region and a drain region." The cited references, considered individually or in combination, do not teach or suggest these features. Okumura does not teach or suggest pocket implants as claimed. Nowhere does Yuki teach or suggest that the high concentration layer 21a be entirely between a source region and a drain region. Sanchez does not teach the first pocket implant to merge with the second pocket implant. Furthermore, Sanchez teaches away from implants that do not surround the entire drain (and thus are not entirely between a source and a drain region).

Accordingly, claim 35 should be allowed for at least these reasons.

Claims 36-37, which depend from claim 35, should be allowed for at least a similar rationale as discussed above for claim 35, as well as for the additional features they recite.

Claim 38 recites, in part, "the first pocket implant to merge with the second pocket implant, wherein the first and second pocket implants are entirely between a source region and a drain region." The cited references, considered individually or in combination, do not teach or suggest these features. Okumura does not teach or suggest pocket implants as claimed. Nowhere does Yuki teach or suggest that the high concentration layer 21a be entirely between a source region and a drain region. Sanchez does not teach the first pocket implant to

merge with the second pocket implant. Furthermore, Sanchez teaches away from implants that do not surround the entire drain.

Accordingly, claim 38 should be allowed for at least these reasons.

Claim 40, which depends from claim 38, should be allowed for at least a similar rationale as discussed above for claim 38, as well as for the additional features it recites.

Claim 42 recites, diffusing the first and second pocket implants laterally, wherein the first and second pocket implants are entirely between a source region and a drain region. The cited references, considered individually or in combination, do not teach or suggest these features. Okumura does not teach or suggest pocket implants as claimed. Nowhere does Yuki teach or suggest that the high concentration layer 21a be entirely between a source region and a drain region. Sanchez teaches away from implants that do not surround the entire drain.

Accordingly, claim 42 should be allowed for at least these reasons.

Claims 43-44, which depend from claim 42, should be allowed for at least a similar rationale as discussed above for claim 42, as well as for the additional features they recite.

Claims 37 and 44

As discussed above, claims 37 and 44 depend from allowable subject matter, and should thus be allowable for at least this reason.

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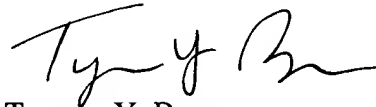
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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this application are in condition for allowance. The issuance of a formal notice of allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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